United States Patent [19]

Fernando et al.

[11] **Patent Number: 4,473,356**

[45] **Date of Patent: Sep. 25, 1984**

[54] **ELECTROMECHANICAL BRAILLE CELL AND METHOD OF OPERATING SAME**

[75] Inventors: **Llavanya X. Fernando**, San Jose; **Noel H. Runyan**, Campbell, both of Calif.

[73] Assignee: **Telesensory Systems, Inc.**, Mountain View, Calif.

[21] Appl. No.: **527,011**

[22] Filed: **Aug. 29, 1983**

[51] **Int. Cl.**[3] **G09B 21/00**

[52] **U.S. Cl.** **434/114**

[58] **Field of Search** 434/113, 114; 340/407

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,229,387	1/1966	Linvill	434/114
4,283,178	8/1981	Tetzlaff	434/114
4,379,697	4/1983	Linvill	434/114
4,445,871	5/1984	Becker	434/114

Primary Examiner—William H. Grieb

Attorney, Agent, or Firm—Harry E. Aine

[57] **ABSTRACT**

An electromechanical braille cell is disclosed wherein each cell includes six braille indicia formed by the free ends of six rods protruding through six openings in braille reading surface. The six rods are raised and lowered by six piezoelectric reeds. Applying an operating potential to a respective reed causes the reed to bend about a fulcrum at the supported root end of the reed causing the free end to deflect in such a manner as to cause the indicia rod to be raised and to protrude through an opening in the reading surface of the braille cell. Simultaneous energization of one or more of the six reeds defines a given braille character sensed by the braille reader. Modulating the voltage applied to a given reed serves to vibrate the respective rod for sensing by the braille reader for indicating information, such as upper case, to the reader in addition to the braille character information represented by merely elevating a pattern of rods above the braille reading surface.

3 Claims, 6 Drawing Figures